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(54) Wound healing powder.

(57) The invention provides a wound healing powder which contains as the active ingredient 40-60% by weight of a combination of allantoin with at least one other substance having a keratolytic activity, at least one other substance having an adstringent activity, at least one substance having an antifungus activity, at least one substance having a bacteriostatic activity, and at least one preservative, wherein a substance may show more than one of the stated activities, but the total number of active components is at least 5.

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Wound healing powder

The invention relates to a wound healing powder.

In comparison with other forms of pharmaceutical compositions, the number of various wound healing powders is relatively small. Most compositions for wound treatment are creams or unguents. The commercially available wound healing powders generally contain 1 or 2 active substances, sometimes on particular carriers. All these powders possess a drawback that they have little general applicability or may be exclusively used by medically trained personnel, or that though they are safe, they only show a slight of dubious activity. In general the action of the powders is based on absorption of exuded moisture, wherein as a result of the presence of moisture possible therapeutical agents penetrate into the tissues through the liquid phase. The accessibility for therapeutic agents can be improved further by using keratolytic agents.

This invention now provides a wound healing powder which is generally applicable and which is also suitable for household use in the case of small injuries and for wound healing in the case of small operations.

The invention provides a wound healing powder which is characterized by the fact that it contains as active ingredient 40-60% by weight of a combination of allantoin with at least one other substance having keratolytic activity, at least one other substance having adstringent activity, at least one substance having anti-fungus activity, at least one substance having bacteriostatic activity and at least one preservative, wherein a substance may show more than one of the stated activities, but the total number of active components is at least 5.

All the active components of the present wound healing powder are known per se, but some thereof are seldom or never used in a wound healing powder.

Allantoin is a known wound treating agent which possesses keratolytic and adstringent effects.

Some further suitable components of the wound healing powder are the following:

Sulphur is a known agent having antimycotic and keratolytic activity.

As the antifungus agent zinc undecylenate and/or undecylenic acid can be suitably used.

As further adstringent agent zinc oxide enters into consideration in the first place. Instead of the zinc oxide one can also use the somewhat basic calamine. This also contains iron and consequently causes some colouring of the powder. This may be preferred or not preferred from esthetic standpoint. Of course, alum is also a possible adstringent agent, but this substance has a rather strong activity and is not suitable under all circumstances.

A multifunctional agent which is particularly suitable as a component of the present wound healing powder is also salicylic acid or a salt thereof. This has a bacteriostatic, fungicidal and keratolytic action.

The wound healing powder according to the invention should also contain at least one preservative. This broadens the usefulness and the storage possibilities. Of course, one should not use a preservative which excerts an irritating action on the skin. Particularly suitable agents are the hydroxy benzoic esters.

A further possible component is benzoyl peroxide which possesses keratolytic and bacteriostatic activities. Another keratolytic agent is sodium pyruvate.

In the past one has also incorporated coal tar or wood tar in wound treating agents as an inflammation inhibiting agent. In principle such a tar can also be incorporated in the present powder, but in connection with the known carcinogenic properties of tar this is not preferred, even though the skin is only contacted with a low concentration thereof during a short time.

A further interesting keratolytic agent is urea.

Furthermore, for special purposes, one can also incorporate an antipruritic agent, for instance camphor or phenol. Finally, boric acid which, as is well known, excerts a soothing action, is a component which enters into consideration.

The mutual ratio's of the active components can be varied within broad limits, wherein however the zinc oxide (or calamine) is the principal ingredient which comprises 50-70% of the active component. Furthermore, it is desirable that the undecylenate comprises 25-35% by weight of the active mixture.

As mentioned already, all the above-discussed active ingredients are known per se. They are discussed for instance in the Merck Index, 10th edition, 1983.

As the carrier any carrier suitable for skin powders may be used, but because talc has a tendency to form lumps, when it is contacted with moisture, one uses preferably kaolin or a similar material. Furthermore, one may add colloidal SiO_2 in order to inhibit caking, as is also known per se.

According to a specially preferred embodiment the wound healing powder, based on the total composition, contains the following active substances: 3-5% allantoin, 1-2% sulphur, 10-18% zinc undecylenate, 0.7-1% salicylic acid, 24-32% zincoxide and 0.1-0.2% ethyl and/or propyl hydroxybenzoate.

The following, non-limiting example serves to elucidate the invention.
A wound healing powder was prepared which contained the following ingredients.

	% by weight
Allantoin	2
Sulphur	1.5
Zinc undecylenate	14
Salicylic acid	0.85
Zincoxide	28
Sodium-ethyl- and sodium-propyl-hydroxybenzoate (1:1)	0.14
Caolin	qs 100

Thereafter 2.5%, based on the above total, of colloidal SiO_2 was still incorporated in this mixture. This wound healing powder was tested in Jerusalem for the circumcision of a large number of babies. Normally some disinfecting composition is applied to the concerning small wound, in order to avoid inflammations (compare Genesis, XXXIV, 25). However, in practice not all babies can tolerate the usual compositions. With the present powder such problems did not occur, and the wounds healed at least as readily as in the case of other compositions.

Also in Israel a woman, due to an accident at home, incurred a rather serious burn on her leg. By chance a sample of the above mentioned powder was present in that house, the composition of which was not known to the inhabitants of this house. The wound was provisionally dusted with this powder, whereafter the woman went by taxi to the hospital for further treatment. When she arrived there and was examined, it appeared that the wound already had such a good appearance that the doctor who examined her did not consider further measures necessary.

In the fall of 1989 a diabetes patient in Israel had an open wound. This wound was treated with the above powder without the patient knowing its nature, and to the stupefaction of the patient himself the wound had closed within two days.

Claims

1. Wound healing powder characterized by the fact that it contains as active ingredient 40-60% by weight of a combination of allantoin with at least one other substance having a keratolytic activity, at least one other substance having an adstringent activity, at least one substance having an antifungus activity, at least one substance having a bacteriostatic activity and at least one preservative, wherein a substance may also have more than one of the stated activities, but the total number of the active components is at least 5.

2. Wound healing powder according to claim 1 characterized by the fact that it contains sulphur as antimycotic and keratolytic agent.

3. Wound healing powder according to claim 1 or 2, characterized by the fact that it contains zinc undecylenate and/or undecylenic acid as antifungus agent.

4. Wound healing powder according to claims 1-3, characterized by the fact that it contains zinc oxide or calamine as adstringent agent.

5. Wound healing powder according to claims 1-4, characterized by the fact that it contains salicyclic acid or a salt thereof as bacteriostatic, fungicidal and keratolytic agent.

6. Wound healing powder according to claims 1-5, characterized by the fact that it contains at least one hydroxybenzoate as preservative.

7. Wound healing powder according to claims 1-6, characterized by the fact that it contains benzoyl-peroxide as keratolytic and bacteriostatic agent.

8. Wound healing powder according to claims 1-7, characterized by the fact that it contains sodium pyruvate and/or urea as keratolytic agent.

9. Wound healing powder according to claims 1-8, characterized by the fact that it contains coal tar as inflammation-inhibiting agent.

10. Wound healing powder according to claims 1-9, characterized by the fact that it contains moreover an antipruritic agent and/or boric acid.

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EUROPEAN SEARCH REPORT

Application Number

EP 90 20 0104

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.5)
A	"Merck Index", 1983, edition 10, pages 39,1289,1408,1457,226,1200,345,1410,185, Merck & Co., Inc., Rahways, NY, US * Monographes 242,8858,9650,9952,1608,8190,2381,9671,1320 * ---	1-5,8-10	A 61 K 33/04 A 61 K 33/30 A 61 K 35/04 // (A 61 K 33/04 A 61 K 31:045 A 61 K 31:20 A 61 K 31:62 A 61 K 31:215 A 61 K 31:17 A 61 K 31:19)
A	US-A-4 668 692 (D. NOORLANDER) * Claim 1 * ---	1	
A	PATENT ABSTRACTS OF JAPAN, vol. 12, no. 467 (C-550)[3314], 7th December 1988; & JP-A-63 188 628 (SHISEIDO CO. LTD) 04-08-1988 * Abstract * -----	1,2,5	(A 61 K 33/30 A 61 K 33:04 A 61 K 31:045 A 61 K 31:20 A 61 K 31:62 A 61 K 31:215 A 61 K 31:17 -/-

TECHNICAL FIELDS SEARCHED (Int. Cl.5)

A 61 K

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	02-05-1990	LEHERTE C.F.M.

CATEGORY OF CITED DOCUMENTS

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			A 61 K 31:19) (A 61 K 35/04 A 61 K 33:30 A 61 K 33:04 A 61 K 31:045 A 61 K 31:20 A 61 K 31:62 A 61 K 31:215 A 61 K 31:17 A 61 K 31:19)
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THE HAGUE	02-05-1990	LEHERTE C.F.M.

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